

**AMENDMENTS TO THE CLAIMS**

Claims 1-14 (Cancelled)

Claim 15 (Previously Amended): A liposomal formulation comprising liposomes that comprise a porphyrin macrocycle photosensitizer, phospholipids and one or more sugars, wherein the osmolarity of the liposomes is that of human blood and wherein said liposomes are fast breaking and rapidly release the photosensitizer into the bloodstream to associate with lipoproteins upon *in vivo* administration.

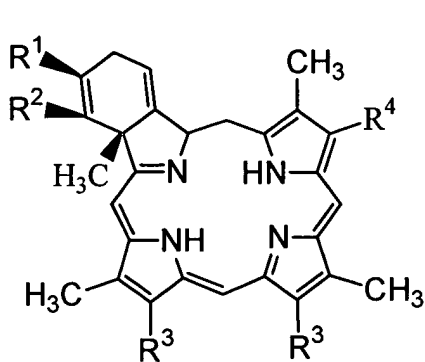
Claim 16 (Previously Added): The liposomal formulation of claim 15 in freeze-dried form.

Claim 17 (Previously Added): The liposomal formulation of claim 15 wherein said sugars are selected from disaccharides or polysaccharides.

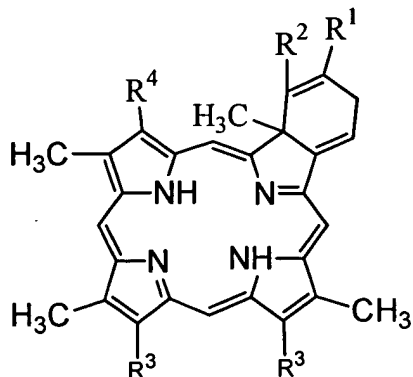
Claim 18 (Previously Added): The liposomal formulation of claim 17 wherein said disaccharides are selected from lactose or trehalose.

Claim 19 (Previously Added): The liposomal formulation of claim 15 wherein the lipid bilayer of said liposomes consists essentially of dimyristoyl phosphatidyl choline and egg phosphatidyl glycerol.

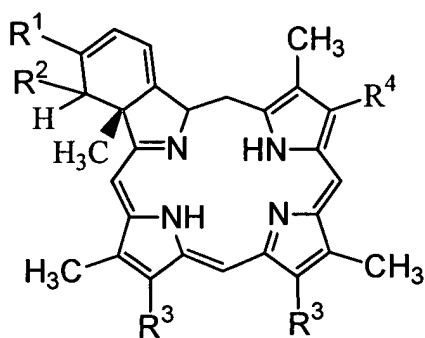
Claim 20 (Currently Amended): The liposomal formulation of claim 15 wherein said porphyrin macrocycle photosensitizer is a hydro-monobenzoporphyrin (Gp) of any one of the following formulas



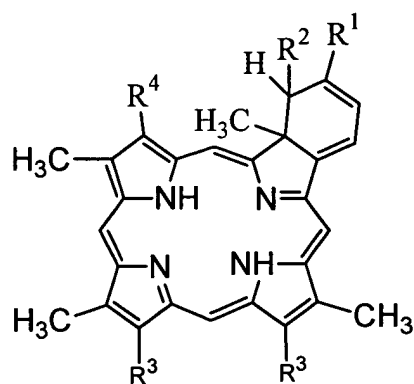
1



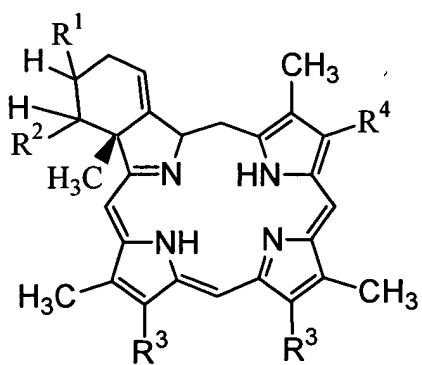
2



3

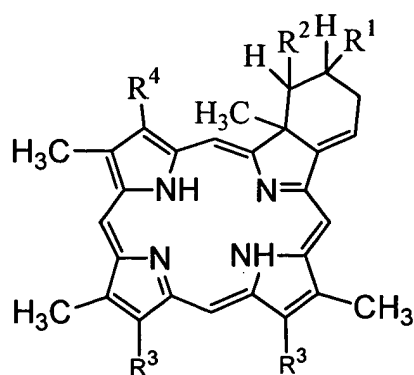


4



5

or



6

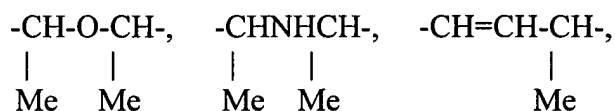
and having a light absorption maximum between 670-780 nm, mixtures thereof, and the metalated and labeled forms thereof,

wherein each  $R^1$  and  $R^2$  is independently selected from the group consisting of carbalkoxy (2-6C), alkyl (1-6C) sulfonyl, aryl (6-10C) sulfonyl, aryl (6-10C); cyano; and  $-\text{CONR}^5\text{CO}-$  wherein  $R^5$  is aryl (6-10C) or alkyl (1-6C);

each  $R^3$  is independently carboxyalkyl (2-6C) or a salt, amide, ester or acylhydrazone thereof, or is alkyl (1-6C); and

$R^4$  is  $-\text{CH}=\text{CH}_2$ ,  $-\text{CHOR}^{4'}$ ,  $-\text{CHO}$ ,  $-\text{COOR}^{4'}$ ,  $-\text{CH}(\text{OR}^{4'})\text{CH}_3$ ,  $-\text{CH}(\text{OR}^{4'})\text{CH}_2\text{OR}^{4'}$ ,  $-\text{CH}(\text{SR}^{4'})\text{CH}_3$ ,  $-\text{CH}(\text{NR}^{4'})_2\text{CH}_3$ ,  $-\text{CH}(\text{CN})\text{CH}_3$ ,  $-\text{CH}(\text{COOR}^{4'})\text{CH}_3$ ,  $-\text{CH}(\text{OOCR}^{4'})\text{CH}_3$ ,  $-\text{CH}(\text{halo})\text{CH}_3$ , or  $-\text{CH}(\text{halo})\text{CH}_2(\text{halo})$ , wherein  $R^{4'}$  is H, alkyl (1-6C) optionally substituted with a hydrophilic substituent,

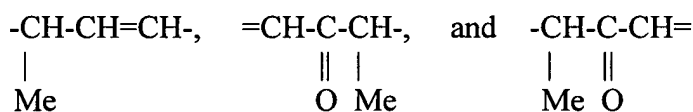
an organic group of less than 12C resulting from direct or indirect derivatization of vinyl, or 1-3 tetrapyrrole-type nuclei of the formula  $-\text{L}-\text{P}$  wherein  $-\text{L}-$  is selected from the group consisting of:



(a)

(b)

(c)



(d)

(e)

(f)

and P is selected from the group consisting of Gp which is of the formula of Figure 1-2, but lacking  $R_4$  and conjugated through the position shown as occupied by  $R^4$  to L;

with the proviso that, if  $R^4$  is  $-\text{CH}=\text{CH}_2$ , both  $R^3$  groups cannot be carbalkoxyethyl.

Claim 21 (Previously Added): The liposomal formulation of claim 20 wherein each  $R^3$  is  $-\text{CH}_2\text{CH}_2\text{COOH}$  or salt, amide, ester or acylhydrazone thereof.

Claim 22 (Previously Added): The liposomal formulation of claim 20 wherein each of R<sup>1</sup> and R<sup>2</sup> is carbalkoxy (2-6C).

Claim 23 (Previously Added): The liposomal formulation of claim 21 wherein each of R<sup>1</sup> and R<sup>2</sup> is carbalkoxy (2-6C).

Claim 24 (Previously Added): The liposomal formulation of claim 20 wherein said hydro-monobenzoporphyrin (Gp) is selected from the group consisting of:

BPD-DA wherein R<sup>1</sup> and R<sup>2</sup> thereof are carbomethoxy;

BPD-DB wherein R<sup>1</sup> and R<sup>2</sup> thereof are carbomethoxy;

BPD-MA wherein R<sup>1</sup> and R<sup>2</sup> thereof are carbomethoxy and R is methyl; and

BPD-MB wherein R<sup>1</sup> and R<sup>2</sup> thereof are carbomethoxy and R is methyl.

Claim 25 (Previously Added): The liposomal formulation of claim 24 wherein said hydro-monobenzoporphyrin (Gp) is BPD-MA wherein R<sup>1</sup> and R<sup>2</sup> thereof are carbomethoxy and R is methyl.

Claim 26 (Previously Added): The liposomal formulation of claim 19 wherein the amounts of photosensitizer, dimyristoyl phosphatidyl choline, and egg phosphatidyl glycerol in said liposomes are, relative to each other on a per weight basis, about

0.2 to 0.4 of porphyrin; 0.94 to 1.88 of dimyristoyl phosphatidyl choline; and 0.65 to 1.30 of egg phosphatidyl glycerol.

Claim 27 (Previously Amended) The liposomal formulation of claim 26 wherein the amount of sugar, relative to said amounts of photosensitizer, dimyristoyl phosphatidyl choline, and egg phosphatidyl glycerol in said liposomes on a per weight basis, is about 8.0 to 12.0 of sugar when said sugar is a disaccharide, or about half that amount if said sugar is a monosaccharide.

Claim 28 (Previously Added): The liposomal formulation of claim 19 further comprising an antioxidant.

Claim 29 (Previously Added): The liposomal formulation of claim 28 wherein said antioxidant is butylated hydroxytoluene or L-ascorbic acid 6-palmitate.

Claim 30 (Previously Added): The liposomal formulation of claim 15 further comprising a pharmaceutically acceptable excipient.

Claim 31 (Previously Added): A method of providing photodynamic therapy to a subject comprising

administering a formulation according to claim 15 to said subject wherein the porphyrin macrocycle photosensitizer, after release from said formulation, is capable of localizing to target tissues or cells, and

irradiating said tissues or cells at an appropriate wavelength of light after passage of sufficient time for said porphyrin macrocycle photosensitizer to localize.

Claim 32 (Previously Added): A method of providing photodynamic therapy to a subject comprising administering a formulation according to claim 19 to said subject wherein the porphyrin macrocycle photosensitizer, after release from said formulation, is capable of localizing to target tissues or cells, and

irradiating said tissues or cells at an appropriate wavelength of light after passage of sufficient time for said porphyrin macrocycle photosensitizer to localize.

Claim 33 (Previously Added): The liposomal formulation of claim 15 wherein the ratio of sugar to phospholipid is about 10-20 to 0.5-6.

Claim 34 (Previously Added): The liposomal formulation of claim 33 wherein the ratio of sugar to phospholipid is 10 to 1.5-4.0.